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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,867	09/15/2003	Noel Wayne Anderson	16347-US	2142
30689	7590	12/21/2005	EXAMINER	
DEERE & COMPANY			RATCLIFFE, LUKE D	
ONE JOHN DEERE PLACE			ART UNIT	
MOLINE, IL 61265			PAPER NUMBER	

3662

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,867

Applicant(s)

ANDERSON ET AL.

Examiner

Luke D. Ratcliffe

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 11-20 and 22-26 is/are rejected.
- 7) ☐ Claim(s) 8, 10 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 11, 16, 17, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Livingston (5939706) in view of Landau (5638164).

Referring to claims 1, 11, 16, 17, 22, and 25 Livingston shows an optical source (figure 1 Ref 12), focusing optical member (figure 2 Ref 50), a micro mirror array (figure 2 Ref 52), and a transmission optical element (figure 1 Ref 12 inherently shown within the optical source). However Livingston does not show a processor that is able to select a resolution level of controlled radiation pattern of narrower beam size based on a previous lower resolution scan of a greater beam size over a greater area.

Landau shows an optical device for measuring distance between the optical device and an object that comprises an optical source (figure 1 Ref 100), a focusing optical element (that is inherent in figure 1 Ref 100), and a processor for selecting a resolution level of controlled radiation pattern of narrower beam size based on a previous lower resolution scan of a greater beam size over a greater area (column 3 lines 1-25). It would have been obvious to modify Livingston to include the scanning processor as

taught by Landau because this offers the ability to determine where the target is within a large area relative to the target.

Claims 1-3, 5-7, 11, 16, 17, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view of Landau (5638164).

Referring to **claim 1, 6, 11 16, 17, 22, and 25**, Hasegawa shows an optical source (figure 2A Ref. 101), a focusing optical member (figure 2A Ref. 2), a micro mirror array (figure 2A fig 3 and figure 2B-A through 2B-D), a processor (column 5 lines 10-30), and a transmission optical member (figure 2A Ref. 32). It would be inherent to use technology in a surface detector that detects distance to the surface in a range finder because a range finder detects the distance of an object using surface detection technology. Hasegawa however does not show a processor that is able to select a resolution level of controlled radiation patter of narrower beam size based on a previous lower resolution scan of a greater beam size over a greater area.

Landau shows an optical device for measuring distance between the optical device and an object that comprises an optical source (figure 1 Ref 100), a focusing optical element (that is inherent in figure 1 Ref 100), and a processor for selecting a resolution level of controlled radiation patter of narrower beam size based on a previous lower resolution scan of a greater beam size over a greater area (column 3 lines 1-25). It would have been obvious to modify Hasegawa to include the scanning processor as taught by Landau because this offers the ability to determine where the target is within a large area relative to the target.

Referring to **claim 2**, Hasegawa shows a micro-mirror array that comprises a microelectromechanical system (column 5 lines 10-30, and figure 2B-A through 2B-D).

Referring to **claim 3**, Hasegawa shows an array of deformable reflective members and a controller for controlling them (column 4 lines 10-30 and column 5 lines 10- 30).

Referring to **claim 5**, Hasegawa shows a beam size that is determined by the reflective members of the micro-mirror array (figure 2B-A through 2B-D).

Referring to **claim 7**, Hasegawa shows an optical source that comprises a laser (figure 2A Ref. 101).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view of Landau (5638164) as applied to claim 1 above, and further in view of Mitsumoto (6611225).

Referring to **claim 4**, Hasegawa shows an optical source (figure 2A Ref. 101), a focusing optical member (figure 2A Ref. 2), a micro mirror array (figure 2A fig 3 and figure 2B-A through 2B-D), a processor (column 5 lines 10-30), and a transmission optical member (figure 2A Ref. 32). It would be inherent to use technology in a surface detector that detects distance to the surface in a range finder because a range finder detects the distance of an object using surface detection technology. Hasegawa however does not show a processor that is able to select a resolution level of controlled radiation patter of narrower beam size based on a previous lower resolution scan of a greater beam size over a greater area or a beam adjust activating successive members

of the micro-mirror array prior to the time that a change in the position of the member is actually required to reduce a response time of the micro-mirror array.

Landau shows an optical device for measuring distance between the optical device and an object that comprises an optical source (figure 1 Ref 100), a focusing optical element (that is inherent in figure 1 Ref 100), and a processor for selecting a resolution level of controlled radiation patter of narrower beam size based on a previous lower resolution scan of a greater beam size over a greater area (column 3 lines 1-25). It would have been obvious to modify Hasegawa to include the scanning processor as taught by Landau because this offers the ability to determine where the target is within a large area relative to the target.

Mitsumoto shows a beam adjust activating successive members of the micro-mirror array prior to the time that a change in the position of the member is actually required to reduce a response time of the micro-mirror array. It would have been obvious to include a device such as a beam adjuster to reduce the response time of the micro-mirror array when using the method of different radiation patterns as described in Mitsumoto. It is also obvious to use methods taught in radar with optical radar because this is a common procedure and adds no new or unexpected results.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view of Landau (5638164) as applied in claim 1 above, further in view of Malone (3942890).

Malone shows a frequency selective filter intercepting a path of a reflection of a controlled radiation patter (figure 1). It would have been obvious to modify Hasegawa to

include the frequency selective filters in Malone because this makes it possible to include color detection of the object.

Claims 12 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Landau (5638164) as applied in claim 11 and 17 above, and in further view of and Livingston (5780839).

Referring to **claims 12 and 23** Livingston shows a representation of a break or interruption in a crop edge of a field in a tracking system (column 6 lines 15-50). It would have been obvious to further modify Hasegawa include the edge detection of Livingston to a laser range finder because tracking an edge will help a range finder track an object.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Landau (5638164) as applied in claim 1 above, and further in view of Crampton (6611617).

Crampton uses a color camera to identify regions of like color (column 9 lines 5 – 15). It would have been obvious to modify Hasegawa to use the color camera of Crampton to identify surfaces of an object at a given distances as being the surfaces of the same object.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Landau (5638164) as applied in claim 1 above, and further in view of Lieber (5220164).

Lieber shows a lens for collecting reflected data (figure 1 Ref. 23), a detector (column 1 lines 44-64), and a timer (columns 9 and 10). It would have been obvious to

modify Hasegawa with the components discussed in Lieber because they are used to determine distance using a time of flight method of light and this is a common method to measure distance using optical signals.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view of in view Landau (5638164) as applied above in claim 14 and further in view of Lieber (5220164) and Norita (6674534).

Norita shows a filter that is interposed between the lens and the sensor (figure 9 Ref. 62 and 12). It would have been obvious to modify Hasegawa with the filter that is interposed between the lens and the sensor because the filter will reject one frequency component of the object to determine if the object is present or if it is noise at a particular frequency.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view of Landau (5638164) as applied in claim 17 above, and in further view of and Kiyoi (6509973).

Kiyoi shows a method for filtering an emitted electromagnetic radiation (column 5 lines 25-45). It would have been obvious to further modify Hasegawa to include the method for filtering the emitted signal because the filtering will focus the signal on the micro-mirror array.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view of Landau (5638164) as applied in claim 17 above, and in further view of and Lai (US2002/0035097).

Lai shows a method for filtering the received reflected signals (column 4 and 5). It would have been obvious to further modify Hasegawa to include the filtering of the received signal as discussed in Lai because it controls the intensity of the range of incident electromagnetic radiation upon the detector.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Landau (5638164) as applied in claim 17 above, and in further view of and Malone (3942890).

Malone shows a frequency selective filter intercepting a path of a reflection of a controlled radiation patten (figure 1). It would have been obvious to modify Hasegawa to include the frequency selective filters in Malone because this makes it possible to include color detection of the object.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Landau (5638164) as applied in claim 17 above, and in further view of and Crampton (6611617).

Crampton uses a color camera to identify regions of like color (column 9 lines 5 – 15). It would have been obvious to modify Hasegawa to use the color camera of Crampton to identify surfaces of an object at a given distances as being the surfaces of the same object.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Landau (5638164) as applied in claim 17 above, and in further view of and Kiyoi (2002/0036779).

Kiyoi shows a method where red, green, and blue are all processed by image processing circuits (columns 9 and 10). It would have been obvious to further modify Hasegawa to include the color processing method as discussed in Kiyoi because this will help identify the color of the object.

Allowable Subject Matter

Claims 8, 10, and 21 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 3662

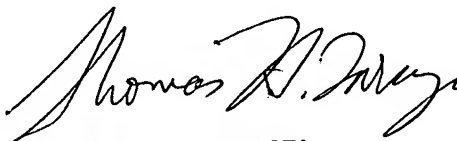
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke D. Ratcliffe whose telephone number is 571-272-3110. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LDR

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